

#2, OIPE

RAW SEQUENCE LISTING DATE: 05/16/2002 PATENT APPLICATION: US/10/016,496 TIME: 14:07:55

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1 <110> APPLICANT: H. William Harris
         Edward M. Brown
         Steven C. Hebert
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 4 <120> TITLE OF INVENTION: Polycation-Sensing Receptor in Aquatic
         Species and Methods of Use Thereof
 6 <130> FILE REFERENCE: 2856.1001-007
                                                            ENTERED
 7 <140> CURRENT APPLICATION NUMBER: 10/016,496
 8 <141> CURRENT FILING DATE: 2001-12-10
10 <150> PRIOR APPLICATION NUMBER: US/09/162,021B
11 <151> PRIOR FILING DATE: 1998-09-28
12 <150> PRIOR APPLICATION NUMBER: PCT/US97/05031
13 <151> PRIOR FILING DATE: 1997-03-27
14 <150> PRIOR APPLICATION NUMBER: 08/622,738
15 <151> PRIOR FILING DATE: 1996-03-27
16 <160> NUMBER OF SEQ ID NOS: 19
17 <170> SOFTWARE: FastSEQ for Windows Version 4.0
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23 <220> FEATURE:
24 <221> NAME/KEY: CDS
25 <222> LOCATION: (439)...(3522)
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31
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32
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33
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34
35
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37
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38
39
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40
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         Gln Arg Ala Gln Lys Lys Gly Asp Ile Ile Leu Gly Gly Leu Phe Pro
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42
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         ata cac ttt gga gta gcc gcc aag gat cag gac tta aaa tcg aga ccg
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43
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44
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              4.5
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4	49	cag	gcg	atg	ata	ttc	gca	att	gaa	gag	att	aac	aac	agt	atg	act	ttc	711
	50	Gln	Ala	Met	Ile	Phe	Ala	Ile	Glu	Glu	Ile	Asn	Asn	Ser	Met	\mathtt{Thr}	Phe	
1	5 1					80					85					90		
	52	cta	ccc	aat	atc	acc	cta	gga	tat	cac	ata	ttt	qac	acq	tat	aac	acc	759
	53							Gly										
	54	LCu			95			011	-1-	100					105			
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								Ala										007
	56 57	val	261		мта	Бец	GIU	ALG	115	пец	Jei	rne	vai	120	GIII	ASII	шуз	
	57			110							44					+	-+-	855
	58							gat										655
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	67	σcc	tcc	t.ca	aσc		cta	ctc	aσc	aac	aaσ	aat	σασ	tac	aaq	qcc	ttc	999
	68							Leu										
	69	лια	JCI	501	175	11.9	шеч	шец	001	180	L, U	11011	014	-1-	185			
	70	ata	200	3.00		000	22t	gat	a a a		a a a	acc	aca	acc		acc	αaα	1047
								Asp										1017
	71	ьeu	Arg		тте	PIO	ASII	ASP	195	GIII	GIII	мта	T11T	200	Mec	Ala	GIU	
	72			190						.					~~~	~~~	~~~	1095
	73							tgg										1093
	74	He		GLu	His	Phe	GIn	Trp	Asn	Trp	vaı	GLY		Leu	Ата	Ата	ASP	
	75		205					210					215					
	76							ggc										1143
	77	Asp	Asp	${ t Tyr}$	Gly	Arg		Gly	Ile	Asp	Lys		Arg	Glu	Glu	Ala		
	78	220					225					230					235	
	79							gac										1191
	80	Lys	Arg	Asp	Ile	Cys	Ile	Asp	Phe	Ser	Glu	Met	Ile	Ser	Gln	${ t Tyr}$	\mathtt{Tyr}	
	81					240					245					250		
	82	acc	caq	aag	cag	ttg	gag	ttc	atc	gcc	gac	gtc	atc	cag	aac	tcc	tcg	1239
	83							Phe										
	84			•	255					260	-				265			
	85	acc	aag	atc		ata	atc	ttc	t.cc		aac	ccc	σac	cta	σασ	cca	ctc	1287
	86	-	_	_			_	Phe										
	87	III u	170	270		, 41		20	275		U -1			280				
	88	2+0	a24		2+2	a++	caa	aga		atc	200	σat	caa		taa	cta	acc	1335
								Arg										±333
	89	TIE		GIU	TIE	val	AIG	_	ASII	TTE	TIIT	ASP		116	111	пец	ALG	
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	91							tct										1383
	92		GLu	Ala	Trp	Ala		Ser	Ser	Leu	тте		гаг	Pro	GIU	туг		
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	94	cac	gtg	gtc	ggc	ggc	acc	atc	ggc	ttc	gct	ctc	agg	gcg	ggg	cgt	atc	1431

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95 96	His	Val	Val	Gly	Gly 320	Thr	Ile	Gly	Phe	Ala 325	Leu	Arg	Ala	Gly	Arg 330	Ile	
97	cca	aaa	ttc	aac		ttc	cta	ааσ	σασ	gtc	cac	ccc	aσc	aσσ	tcc	tcq	1479
98										Val							
99	110	017	1110	335					340					345			
100	αac	. aat	aaa		atic	аас	orac	rtto		g gag	gag	acc	tto	aac	t qc	tac	1527
101										Glu							
102	1101	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	350			-1-	0_0	355					360		•		
103	ttc	acc			acc	cta	aco			r aaq	aat	tco	aac	qto	ı ccc	tcg	1575
104																Ser	
105		365		1 -			370			-	•	375					
106	cac			r aca	act	caa	qqq	qaq	: वव	tac	aag	gcg	ggg	, aac	tcc	aga	1623
107																Arg	
108	380					385		•	-		390		_	'		395	
109			a dec	cta	cqc			tgo	act	ggg	gag	gag	aac	ato	acc	agc	1671
110										r Gly							
111			•		400			_		405					410		
112	ato	r gag	raco	ccc	tac	ctq	gat	tat	aca	a cac	ctg	agg	, ato	tc	tac	aat	1719
113	Val	Glu	ı Thr	Pro	Tyr	Leu	Asp	туг	Thi	r His	Leu	Arg	, Ile	e Sei	Tyr	Asn	
114				415					420					425			
115	gta	tac	gtg	gco	gto	tac	tco	att	: gct	t cac	gcc	cto	caa	a gad	c ato	cac	1767
116	Va]	. Туг	· Val	. Āla	Val	Tyr	Ser	: Ile	e Ala	a His	Ala	Let	ı Glr	n Asp	, Ile	His	
117			430					435					44(
118	tct	tgc	aaa	ccc	ggc	acg	ggo	ato	tt:	t gca	aac	gga	i tct	tgt:	gca	gat	1815
119	Ser	Cys	Lys	Pro	Gly	Thr	Gly	, Ile	Phe	a Ala	ı Asn	Gly	y Sei	Cys	s Ala	Asp	
120		445	5				450)				455	5				
121																ctg	1863
122	$I1\epsilon$	e Lys	s Lys	val	. Glu	Ala	Trp	Glr	wa]	l Leu	ı Asn	His	: Le	ı Lev	ı His	Leu	
123	460					465					470					475	
124	aag	y ttt	aco	aac	ago	: atg	ggt	gag	g cag	g gtt	gac	: ttt	gad	gat	caa	ggt	1911
125	Lys	s Phe	e Thi	: Asn	Ser	Met	Gl	/ Glu	ı Glı	n Val	. Asp	Phe	Asp	Ası		Gly	
126					480					485					490		
127																gag	1959
128	Asp	Let	ı Lys	s Gly	Asn	Tyr	Thi	: Ile	e Ile	e Asn	Trp	Glr	ı Lei			Glu	
129				495					500					50!			
130																gct	2007
131	Asp	o Glu			Leu	ı Phe	His			l Gly	y Asn	туз			а Туг	Ala	
132			510					515					520				0055
133																gagt	2055
134	Lys			Asp	Arg	Leu			a Ası	n Glu	ı Lys			e Lei	ı Trp	Ser	
135		525					530					535					0100
136																gtg	2103
137	-	•	e Sei	r Lys	val			o Phe	e Se:	r Asn			c Ar	J AS	o Cys	Val	
138	54(545					550					555	21 51
139	GG	a aad	c acc	agg	, aag	. ggg	ato	c ato	gag	g ggg	g gag	CCC	aco	tgo	e tgo	ttt	2151
140	Pro	o Gly	y Thi	r Arg			, TT6	s TT6	e GTI			PIC	J TINI	L CY	570	Phe	
141					560					565 - ++			- ~				2199
142	gaa	a tgo	ate	gge	tgt	. gca	gag	g gga	ı gaç	y CCC	agt	- yaı	ya:	a dd	yal	gca	4133
143	Gli	л СУ	s Met	c Ala	суз	a Ala	ı GIL	ı GT	A GTI	u Pne	e ser	. AS	ובט י	ı ASI	ı AS	Ala	

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144				575					580					585			
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146					Lys												
147			590		-4	4		595	•		-		600				
148	acq	tcq	tac	atc	gcc	aaq	qaq	atc	gag	tac	ctg	tcg	tgg	acg	gag	ccc	2295
149					Ala												
150		605	_			-	610			•		615	_				
151	ttc		atc	act	ctg	acc	atc	ttc	qcc	qta	ctq	qqc	atc	ctg	atc	acc	2343
152					Leu												
153	620					625					630	-				635	
154		ttc	ata	cta	ggg	qtc	ttc	atc	aaq	ttc	agg	aac	act	ccc	atc	gtg	2391
155				_	Gly	_			_								
156					640				-	645	•				650		
157	aaσ	qcc	acc	aac	cgg	σaσ	tta	tcc	tac	ctq	ctq	ctc	ttc	tcc	ctc	atc	2439
158					Arg												
159	-1 -			655	, ,				660					665			
160	tac	tqc	ttc	tcc	agc	tcg	ctc	atc	ttc	atc	ggc	gag	ccc	agg	gac	tgg	2487
161					Ser												
162	•	_	670					675			_		680	_	-		
163	acc	tgt	cqq	ctc	cgc	caa	ccg	gcc	ttt	ggc	atc	agc	ttc	gtc	ctg	tgc	2535
164		_			Arg		_	-									
165		685	_		_		690			_		695					
166	atc	tcc	tgc	atc	ctg	gtg	aag	acc	aac	cgg	gtg	ctg	ctg	gtc	ttc	gag	2583
167	Ile	Ser	Cys	Ile	Leu	Val	Lys	Thr	Asn	Arg	Val	Leu	Leu	Val	Phe	Glu	
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169	gcc	aag	atc	ccc	acc	agc	ctc	cac	cgc	aag	tgg	gtg	ggc	ctc	aac	ctg	2631
170					Thr												
171		_			720					725					730		
172	cag	ttc	ctc	ctg	gtc	ttc	ctc	tgc	atc	ctg	gtg	caa	atc	gtc	acc	tgc	2679
173	Gln	Phe	Leu	Leu	Val	Phe	Leu	Cys	Ile	Leu	Val	Gln	Ile	Val	Thr	Cys	
174				735					740					745			
175	atc	atc	tgg	ctc	tac	acc	gcg	cct	ccc	tcc	agc	tac	agg	aac	cat	gag	2727
176	Ile	Ile	Trp	Leu	Tyr	Thr	Ala	Pro	Pro	Ser	Ser	Tyr	Arg	Asn	His	Glu	
177			750					755					760				
178					gtc												2775
179	Leu	Glu	Asp	Glu	Val	Ile	Phe	Ile	Thr	Cys	Asp	Glu	Gly	Ser	Leu	Met	
180		765					770					775					
181					ctc												2823
182	Ala	Leu	Gly	Phe	Leu	Ile	Gly	\mathtt{Tyr}	Thr	Cys	Leu	Leu	Ala	Ala	Ile		
183	780															795	
184					ttc												2871
185	Phe	Phe	Phe	Ala	Phe	Lys	Ser	Arg	Lys	Leu	Pro	Glu	Asn	Phe		Glu	
186					800					805					810		
187					acc												2919
188	Ala	Lys	Phe		Thr	Phe	Ser	Met		Ile	Phe	Phe	Ile		Trp	Ile	•
189				815					820					825			=
190					gcc												2967
191	Ser	Phe		Pro	Ala	Tyr	Val		Thr	Tyr	Gly	Lys		Val	Ser	Ala	
192			830					835					840				

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193 194 195		gtg att Val Ile		Ile											3015
196 197 198	att tac	ttc aac	Lys	tgt	tac			-		aag					3063
199 200 201		gag gag Glu Glu													3111
202 203 204		cgg gcc Arg Ala 895	Thr :												3159
205 206 207		ctg tgc Leu Cys 910													3207
208 209 210		ggc cto Gly Leu		Met		-	-	_	_						3255
211 212 213	-	ggc agc Gly Ser	Gly !		_		_	_		-		-			3303
214 215 216		tac gcc Tyr Ala													3351
217 218 219		cgc ago Arg Ser 975	Gly		-	_			-						3399
220 221 222	-	cag aaa Gln Lys 990	-			_	Pro	-				Arg			3447
223 224 225		eeg acc Pro Thr 5		Gly		Leu					Gly				3495
226 227 228	-	aca act Thr Thr	Met		Glu		taa *	tcca	aacto	cct o	cato	caac	cc		3542
229 230 231	caagaac cccaacc	atc ctco tct ccco ccc tgat	acggc	a go g go	accg actt	tgc	, ttt	tgct	gaa	gatt	gcag	jca 1	tctg	cagttc	3662
232 233 234	aatgagt ctgaact	tgc acaa act ttat aac attg	ttagg tctct	t ga c ga	gcag	agtt statt	gto	gtcaa aaaca	agt attt	atct	gaad gtatt	ta t	tctga tagt <u>e</u>	aagtat gacatt	3782 3842
235 236 237	ctgagat gcaacag	tgc cact gaa tata	gtgat	g ac t gt	agaa .aaca	ctgt	ttt a aat	ataa tgtt	acat cgat	ttat tato	catt	ga a	aacct atgca	iggatt aaattg	3962 4022
237 238 240 <210> 241 <211> 242 <212>	aaaaaaa SEQ ID LENGTH:	1027												jaladd	4134

RAW SEQUENCE LISTING ERROR SUMMARY PATENT APPLICATION: US/10/016,496

DATE: 05/16/2002 TIME: 14:07:56

Input Set : N:\Crf3\RULE60\10016496.raw
Output Set: N:\CRF3\05162002\J016496.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the $\langle 220 \rangle$ to $\langle 223 \rangle$ fields of each sequence which presents at least one n or Xaa.

Seq#:3; Xaa Pos. 62
Seq#:7; Xaa Pos. 11,86
Seq#:8; Xaa Pos. 86
Seq#:11; Xaa Pos. 422,433
Seq#:12; Xaa Pos. 422,433

Seq#:15; N Pos. 3
Seq#:16; N Pos. 4,10

VERIFICATION SUMMARY PATENT APPLICATION: US/10/016,496

DATE: 05/16/2002 TIME: 14:07:56

Input Set : N:\Crf3\RULE60\10016496.raw

Output Set: N:\CRF3\05162002\J016496.raw

L:394 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:3 L:394 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:192 L:565 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:7 L:565 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:49 L:580 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:7 L:580~M:341~W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:289 L:623 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:80 L:793 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:11 L:793 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:1297 L:796 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:11 L:796 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:1308 L:860 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12 after pos.:416 L:862 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12 after pos.:432 L:899 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:15 L:902 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:15 L:905 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:15 L:908 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:15 L:909 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15 after pos.:0 L:922 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:16 L:925 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:16 L:928 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:16 L:931 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:16 L:934 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:16 L:935 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:16 after pos.:0 L:948 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:17 L:951 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:17 L:965 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:18 L:968 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:18 L:971 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:18 L:974 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:18 L:977 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:18 L:991 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:19 L:994 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:19 L:997 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:19 L:1000 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:19 L:1003 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:19